

What is claimed is:

1. An apparatus for occluding a blood vessel comprising:
  - a. a plug for insertion into the blood vessel so as to be gripped by the walls of the blood vessel; and
  - b. an insertion device having means to attach the plug to the insertion device and means for providing an axial force to insert the plug into the blood vessel.
2. The apparatus as recited in claim 1 wherein the plug has a tapered outer surface and a pilot hole to enable the plug to be attached to the insertion device.
3. The apparatus as recited in claim 1 wherein the plug has a tapered outer surface, an inner corrugated surface, and a pilot hole to enable the plug to be attached to the insertion device.
4. The apparatus as recited in claim 1 wherein the plug comprises a rounded end, a first cylindrical body attached to the rounded end, a disc attached to the first cylindrical body, the diameter of the disc being larger than diameter of first cylindrical body, a second cylindrical body attached to the disc, and a pilot hole on the second cylindrical body, the pilot hole enabling the plug to be attached to the insertion device.
5. The apparatus as recited in claim 1 wherein the plug is made of silicone.
6. The apparatus as recited in claim 1 wherein the insertion device further comprises:
  - a. a needle;

3 b. a tubular needle guard surrounding the needle, the tubular needle guard fitting  
4 into a pilot hole of the plug;

5 c. a spring connected to the needle to propel the needle outwards; and

6 d. a lever operable to compress and decompress the spring.

1 7. A plug for occluding a blood vessel, the plug being propelled by an insertion device  
2 into the lumen of the blood vessel and gripped by the walls of the blood vessel, the  
3 plug comprising means for attaching to the insertion device.

1 8. The plug as recited in claim 7 wherein the attaching means is a pilot hole to enable  
2 the plug to be attached to the insertion device.

1 9. The plug as recited in claim 8 further comprising a tapered outer surface.

1 10. The plug as recited in claim 9 further comprising an inner corrugated surface.

1 11. The plug as recited in claim 7 further comprising a rounded end, a first cylindrical  
2 body attached to the rounded end, a disc attached to the first cylindrical body, the  
3 diameter of the disc being larger than diameter of first cylindrical body, a second  
4 cylindrical body attached to the disc, and a pilot hole on the second cylindrical body,  
5 the pilot hole enabling the plug to be attached to the insertion device.

1 12. The plug as recited in claim 7 wherein the plug is made of silicone.

- 1 13. An insertion device for inserting a plug into a blood vessel, the insertion device
- 2 comprising:
- 3 a. a needle;
- 4 b. a tubular needle guard surrounding the needle, the tubular needle guard fitting
- 5 into a pilot hole of the plug;
- 6 c. a spring connected to the needle to propel the needle outwards to propel the plug
- 7 into the blood vessel; and
- 8 d. a lever operable to compress and decompress the spring.

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